столкновений проявляется при рассмотрении столкновений с ориентированными вдоль скорости иона нанотрубками [3]. Экспериментального подтверждения эффекта до настоящего времени не существует, поскольку такая проверка технически сложна и может быть проведена лишь на ускорителях тяжелых ионов. Однако эффект интересен не только с общефизической - фундаментальной точки зрения, но и может иметь значительные прикладные возможности.

Используя подходы развитые в работах [1-3] было показано, что на углеродной нанотрубке C_{300} происходит увеличение обдирки ионного пучка золота Au по сравнению с хаотически разбросанными атомами углерода.

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FUEL LOADING OPTIMIZATION INTO THE ACTIVE ZONE OF THE BN-800 REACTOR FOR THE PURPOSE OF THE MOST BALANCED DISTRIBUTION OF THE ENERGY RELEASING FIELD

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Abstract. During the research, the optimization of fuel loading into the active zone of the BN-800 reactor was conducted using the simplest method by the mass of fissile material without the possibility of installing different types of fuel in one zone. The simulation was carried out in the software-hardware complex GEFEST-800.

One of the main tasks in active zone optimization is to make a leveled and stable field of energy release during the campaign. Solving problems of optimizing the fuel load into the active zone, as well as leveling and stabilizing the energy release field, improves neutron-physical, thermal-hydraulic and economic characteristics of the reactor.

The problem of regulation of the energy releasing field is topical. The instability of its distribution leads to overpower in separate fuel assemblies and to their depressurization [1], and also affects safe management and operation of the reactor.

It is necessary to calculate the parameters using the GEFEST-800 software and hardware complex for solving the optimization problem.

The hardware-software complex provides calculation support for the operation of the BN-800 reactor to automaty the acquisition, analysis, storage and presentation of

information on all assemblies of the reactor active zone BN-800 from start to finish of facility reactor operation installation, calculations to determine the neutron-physical and thermal-hydraulic characteristics of the reactor [2].

There are several ways for flattening energy releasing and ensure optimal characteristic of fast reactor [3]:

active zone loading consisting of a different proportion of fissile elements;

active zone loading consisting of a different fuel mass fraction, fuel density, fuel elements diameters and the number of fuel element in fuel assemblies.

Using GEFEST-800 there was made a three-dimensional calculation of the energy releasing in the active zone, taking into account the micro- incision and flows, which are prepared in the modules of the complex.

During the work was held a neutron-physical calculation of the active zone of the BN-800 reactor at the hardware-software complex GEFEST-800 and there were proposed optimization works for choosing the configuration of the reactor active zone.

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